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Tucker et al.

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[54] BATTERY SYSTEM AND A METHOD FOR GENERATING ELECTRICAL POWER

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[56] References Cited

U.S. PATENT DOCUMENTS

 4,435,487
 3/1984
 Supelak et al.
 429/70

 5,399,444
 3/1995
 Smith
 429/70

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[57]

ABSTRACT

The present invention relates to a dry composition of materials to be used in a battery system. The dry composition comprises a mixture consisting of sodium hydroxide and sodium oxide. In a first reservoir in the battery system, the mixture is present in an amount sufficient to form with water a heated sodium hydroxide electrolyte solution having a 15% by weight concentration of sodium hydroxide. In a second reservoir in the battery system, the mixture is present in an amount sufficient to form with water a heated sodium hydroxide electrolyte solution having to up to about 75% by weight concentration of sodium hydroxide. The present invention also relates to a battery system and a method for generating electrical power which utilize the aforementioned dry composition of materials.

18 Claims, 3 Drawing Sheets